DOCUMENT RESUME

ED 217 625 EC 142 710

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TITLE The Regular Classroom Interactions of Learning Disabled Adolescents and Their Teachers.
INSTITUTION Kansas Univ., Lawrence, Inst. for Research in Learning Disabilities.
SPONS AGENCY Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C.
REPORT NO IRLD-RR-8
PUB DATE Jan 80
CONTRACT 300-77-0494
NOTE 96p.

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS Adolescents; High Schools; *Interaction; *Learning Disabilities; *Mainstreaming; *Student Attitudes; *Student Teacher Relationship; *Teacher Attitudes

ABSTRACT

The study examined the teacher-student interactions of 29 adolescent learning disabled (LD) students and their regular classroom teachers. A review of research revealed that students who are low achievers, hyperactive, defiant, and dependent receive less approval and support and more criticism and disapproval from their teachers. Ss were observed in regular classrooms in two high schools. Teachers were administered the Demographic Information Form, the Attitude toward Handicapped Individuals Scale, and the Devereux Adolescent Behavior Rating Scale, and students were given the Teacher Approval-Disapproval Scale. Results indicated that teachers were equitable in their interactions with LD and nonLD students and did not perceive LD students as more hyperactive, defiant, or dependent than nonLD students. Even though LD students were treated like nonLD students, they perceived less approval and more disapproval from their teachers and were happy in their regular classrooms significantly less often than nonLD students. Appended are observation sheets and instructions and tables with statistical data. (Author/SB)

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INSTITUTE FOR RESEARCH IN LEARNING DISABILITIES
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THE REGULAR CLASSROOM INTERACTIONS OF LEARNING DISABLED ADOLESCENTS AND THEIR TEACHERS

Thomas M. Skrtic

Research Report #8

January, 1980

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EC142710

The University of Kansas Institute for Research in Learning Disabilities is supported by a contract (#300-77-0494) with the Bureau of Education for the Handicapped, Department of Health, Education, and Welfare, U. S. Office of Education, through Title VI-G of Public Law 91-230. The University of Kansas Institute, a joint research effort involving the Department of Special Education and the Bureau of Child Research, has specified the learning disabled adolescent and young adult as the target population. The major responsibility of the Institute is to develop effective means of identifying learning disabled populations at the secondary level and to construct interventions that will have an effect upon school performance and life adjustment. Many areas of research have been designed to study the problems of LD adolescents and young adults in both school and non-school settings (e.g., employment, juvenile justice, military, etc.)

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The preparation of this document was supported by a government contract. The views expressed here are those of the Institute, and do not necessarily reflect official positions of the Bureau of Education for the Handicapped, DHEW, USOE.

Cooperating Agencies

Were it not for the cooperation of many agencies in the public and private sector, the research efforts of The University of Kansas Institute for Research in Learning Disabilities could not be conducted. The Institute has maintained an on-going dialogue with participating school districts and agencies to give focus to the research questions and issues that we address as an Institute. We see this dialogue as a means of reducing the gap between research and practice. This communication also allows us to design procedures that: (a) protect the LD adolescent or young adult, (b) disrupt the on-going program as little as possible, and (c) provide appropriate research data.

The majority of our research to this time has been conducted in public school settings in both Kansas and Missouri. School districts in Kansas which are participating in various studies include: United School District (USD) 384, Blue Valley; USD 500, Kansas City; USD 469, Lansing; USD 497, Lawrence; USD 453, Leavenworth; USD 233, Olathe; USD 305, Salina; USD 450, Shawnee Heights; USD 512, Shawnee Mission, USD 464, Tonganoxie; USD 202, Turner; and USD 501, Topeka. Studies are also being conducted in Center School District and the New School for Human Education, Kansas City, Missouri; the School District of St. Joseph, St. Joseph, Missouri; Delta County, Colorado School District; Montrose County, Colorado School District; Elkhart Community Schools, Elkhart, Indiana; and Beaverton School District, Beaverton, Oregon. Many Child Service Demonstration Centers throughout the country have also contributed to our efforts.

Agencies currently participating in research in the juvenile justice system are the Overland Park, Kansas Youth Diversion Project and the Douglas, Johnson, and Leavenworth County, Kansas Juvenile Courts. Other agencies have participated in out-of-school studies--Achievement Place and Penn House of Lawrence, Kansas, Kansas State Industrial Reformatory, Hutchinson, Kansas; the U.S. Military; and the Job Corps. Numerous employers in the public and private sector have also aided us with studies in employment.

While the agencies mentioned above allowed us to contact individuals and supported our efforts, the cooperation of those individuals--LD adolescents and young adults; parents; professionals in education, the criminal justice system, the business community, and the military--have provided the valuable data for our research. This information will assist us in our research endeavors that have the potential of yielding greatest payoff for interventions with the LD adolescent and young adult.

Abstract

Research on the process of teaching indicates that students who are low achievers, hyperactive, defiant, and dependent receive less approval and support and more criticism and disapproval from their teachers. Further, students discriminate teacher approval and disapproval and form corresponding attitudes toward the teacher and learning which influences performance and adjustment. Since the implications are quite serious for learning disabled students in regular classrooms, this study tested these findings through direct observation of learning disabled adolescents in regular classrooms. Results indicated that teachers were equitable in their interactions with learning disabled and non-learning disabled students and did not perceive learning disabled students as more hyperactive, defiant, or dependent than non-learning disabled students. Even though learning disabled students were treated like non-learning disabled students, they perceived less approval and more disapproval from their teachers and were happy in their regular classrooms significantly less often than non-learning disabled students.

THE REGULAR CLASSROOM INTERACTIONS OF LEARNING DISABLED ADOLESCENTS AND THEIR TEACHERS

Recently, Benjamin Bloom (1980) described what he called the new direction in educational research. He characterized one area of the new research of the 1980s as the study of the process of teaching. He predicted profound changes in school and society resulting from the study of interactions between teachers and students. This research involves the direct observation of teaching and learning taking place in the classroom.

Bloom went on to summarize the research that has been completed in the study of teaching as follows.

> Observations of teacher interaction with students in the classroom reveal that teachers frequently direct their teaching and explanations to some students and ignore others. They give much positive reinforcement and encouragement to some students but not to others, and they encourage active participation in the classroom interaction from some students and discourage it from others. The studies find that typically the students in the top third of the class are given the greatest attention by teachers, while the students in the bottom third receive the least attention and support. These differences in the interaction between teachers and students provide some students with much greater opportunity and encouragement for learning than is provided other students in the same classroom (p. 384).

Bloom's contention holds serious implications for the educational opportunity afforded students in the "bottom third" of the class. The seriousness of these implications, however, is intensified for those who support the practice of educating handicapped learners

in regular classrooms. The following sections attempt to delve deeper into the research literature eluded to by Bloom. The first three sections address specific student attributes which elicit less than favorable teacher responses, teacher characteristics which influence teacher-student interactions, and the effects of these interactions on student performance and adjustment. The final section addresses the implications of these findings for one group of handicapped learners---learning disabled adolescents.

Student Attributes

Brophy and Good (1974) provided an extensive review of experimental and observational studies related to the influence of student attributes on the interactions they have with teachers. Their conclusion was that individual student attributes influence the quantity and quality of teacher-student interactions. The findings of the Beginning Teacher Evaluation Study (Tikunoff, Berliner, & Rist, 1975) were consistent with Brophy and Good's interpretation of research findings. The student attributes identified have been classified as either membership in an identifiable group or personal characteristics.

Group membership has been defined according to a number of dimensions. Strong evidence supporting differential treatment of students according to their socioeconomic status (Becker, 1952; Davis & Dollard, 1940; Friedman & Friedman, 1973; Goodwin & Sanders, 1969), race (Coates, 1972; Datta, Schaefer, & Davis, 1968; Kleinfeld, 1972), and sex (Arnold, 1968; Jackson & Lahaderne, 1967; Spaulding, 1963) has been reported.

In addition to reacting to students on the basis of group membership, teachers respond to individual differences in students' personal attributes and behavior. Differential treatment of students on the basis of personal attributes ranges from very specific behaviors, such as, writing neatness (Chase, 1968; Huck & Bounds, 1972) and speech and language characteristics (Guskin, 1970), to general characteristics, such as, student personality (Feshback, 1969), achievement level (deGroat & Thompson, 1949; Good, 1970; Kranz, Weber, & Fishell, 1970), and the student's need for special attention (i.e., dependency) (Brophy & Good, 1974). Student personality factors have been shown to influence teachers' perception of and reaction to their students. Individual student personalities make some students more salient to the teacher and determine whether or not a teacher likes a particular student. This is turn affects how the teacher interacts with individual students (Jackson, Silberman, & Wolfson, 1969). Hadley (1954) reported that teachers graded students they liked higher than their measured achievement would dictate. Feshback (1969) identified student personality attributes that attracted or repelled teachers. He found that teachers preferred students who were rigid, conforming, and orderly. The least preferred students were nonconforming, active (in a negative sense), assertive, and untidy.

After reviewing several studies of the effect of student personality factors on teachers' attitude toward and reaction to students, Brophy and Good (1974) concluded that individual students' personality differences affect the teacher for better or worse and the attitude a teacher forms toward a student affects how the child is treated in the classroom and how his/her performance is graded.

Student achievement level was identified by Brophy and Good as the single most important student attribute in predicting the quality and quantity of teacher-student interactions. Differential treatment of students according to their measured achievement has been demonstrated across several elementary grade levels. Good (1970) found that high achievers received more opportunities to respond and more positive feedback than low achieving classmates. Similar results were reported by Kranz, Weber, and Fishell (1970) across several elementary grade levels. Hoehn (1954) found that high achieving students enjoyed more promotive and supportive contacts from their teachers, while low achievers had a greater proportion of teacher contacts involving conflict. In this regard, deGroat and Thompson (1949) reported that high achievers received more teacher approval and that low achievers received a disproportionate share of disapproval.

Another important student attribute that influences teacher-student interactions is level of dependency, that is, the students need for special or individualized help. In their review, Brophy and Good concluded that dependency in a student compounds the situation, in that dependency lessens the quantity of interactions and worsens their quality.

Teacher Characteristics

Although Bloom (1980) has pointed out that research on the relationship between teacher characteristics and student learning has consistently produced only low positive correlations, several researchers have demonstrated significant relationships between teacher characteristics and teacher-student interactions (e.g., Anderson, Brewer, & Reed, 1946; Tikunoff, Berliner, & Rist, 1975).

Predicting teacher-student interactions on the basis of teacher characteristics is complicated by the fact that all teachers do not respond to student attributes the same due to individual differences in teacher personality. Brophy and Good summarized the research in this area by saying that, as a group, teachers hold roughly the same values and opinions as other adults in society. That is, "they tend to react positively to behavior that is generally valued and negatively to behavior that is generally condemned" (p. 240). They predicted that almost all teachers will "find it easier to like and respond favorably to a bright, outgoing, and mature child than to a child who is nervous and insecure or hostile and aggressive" (p. 240). They similarly predicted that most if not all teachers will be more comfortable and at ease continuing an interaction with a "confident child who is providing interesting and appropriate answers, and appearing to be enjoying himself," than they will be with a child who appears "fearful, uncomfortable, or unable to understand" (p. 240).

Teacher Behavior and Student Performance

The first question to be asked in relation to the effect of differential treatment on student performance is whether or not students are aware of their teacher's behavior toward them. Flanders (1975), in a review of 11 of his studies, reported that students were capable of discriminating between supportive-accepting (approval) statements and directive-critical (disapproval) statements. Seven of the 11 studies involved students in the seventh through ninth grades. "Pupils perceived the differences in the two patterns of teacher statements clearly and consistently and thereby developed similar

attitudes toward the teacher according to the pattern" (p. 47). He explained that the quality and quantity of teacher-student interactions dictate the student's attitude toward the teacher, the learning activities and the self-as-learner. He concluded that, if these attitudes are negative, they will, when combined create a "state of anxiety that severely inhibits pupils' work on subject-matter tasks" (p. 44).

The ability of students to interpret their teachers' behavior toward them and the resultant effect on student performance has been described by Brophy and Good (1970) as the "teacher expectancy effect". They describe this effect as follows:

1. The teacher forms differential expectations for student performance;
2. He then begins to treat children differently in accordance with his differential expectations;
3. The children respond differently to the teacher because they are being treated differently by him;
4. In response to the teacher, each child tends to exhibits behavior which compliments and reinforces the teacher's particular expectation for him;
5. As a result, the general academic performance of some children will be enhanced while that of others will be depressed, with changes being in the direction of teacher expectations;
6. The effects will show up in the achievement tests given at the end of the year providing support for "the self-fulfilling prophecy" notion (pp. 365-366).

The ability of students to preceive differential treatment from the teacher and the ability of this treatment or expectancy to affect student performance has also been demonstrated by other researchers (Beez, 1971; Parlady, 1969).

In his book, Teaching Behaviours and Student Achievement, Barak Rosenshine (1971) reviewed over 100 experimental and observational studies. His general conclusion was that the interactions that take place between teachers and students influence the academic and social development of the students. Gage (1978) supported Rosenshine's conclusion as well as identifying other research and reviews of research (Medley, 1977; Rosenshine, 1976; Crawford & Gage, 1977) which supported the same general conclusions.

Implications for Learning Disabled Adolescents

The implications for the regular classroom instruction of learning disabled (LD) adolescents are quite clear. By definition, one would expect the learning disabled student to be considered in Bloom's "bottom third" of the class. The LD label, itself, might cause them to be considered to be in the "bottom third" in the eyes of their teachers even if their behavior didn't warrant it (Salvia, Clark, & Ysseldyke, 1973). The academic and social characteristics traditionally ascribed to the LD population appear to correspond to the student attributes which have been shown to negatively influence teacher-student interactions.

Johnson and Myklebust (1967) identified social imperception as one of the most debilitating characteristics of the learning disabled student. The specific behaviors associated with social imperception have been described by several authors. Lerner (1976) characterized

the socially imperceptive child as being "insensitive to the general atmosphere of a social situation" and "continually doing or saying the wrong thing" (p. 325). Siegel (1974) described the socially imperceptive LD adolescent as anxious, impulsive and disinhibited--a notorious interrupter, who by trying too hard to say the right thing, does not "ring true". Bader (1975) summarized these behaviors by saying that, together, they prevent the socially imperceptive individual from experiencing satisfactory interpersonal relationships.

It is very likely that teachers, who are unaware of social imperception and its associated behaviors, may perceive the learning disabled student as non-conforming, assertive, and/or aggressive. This perception, according to several researchers (Feshback, 1969; Hadley, 1954; Jackson et al., 1969), will result in less teacher-student interaction as well as interactions which are less supportive and promotive.

Another personal attribute that has been shown to influence the quantity and quality of teacher-student interactions is hyperactivity (Feshback, 1969). Hyperactivity traditionally has been a characteristic attributed to the learning disabled population. The greater chance for hyperactivity to exist in this population further increases the likelihood of a reduction in quantity and quality of teacher-student interaction.

The next student attribute identified in the literature as influencing teacher-student interactions is achievement level. Low or underachievers receive less opportunity to respond and less positive feedback as well as experiencing less promotive and

supportive interactions with their teachers. This fact, alone, places the learning disabled adolescent in a vulnerable position in the regular classroom, since, by definition, they are underachievers (Hallahan & Kauffman, 1976). In regard to achievement, Lerner (1976) maintained that the characteristic inconsistency and unpredictability in achievement of LD children may worsen the situation.

A final student attribute that elicits less positive teacher reactions to students is dependency. Brophy and Good (1974) reported that the student's need for special consideration in the learning situation influences the types and amounts of teacher-student interaction. They described a confounding effect of the interactions reviewed above when the student is perceived as dependent. It is very likely that learning disabled students are perceived by their teachers as being dependent. The approach recommended for teaching LD students involves specializing or individualizing the curriculum (e.g., Hallahan & Kauffman, 1976; Lerner, 1976; Wallace & Kauffman, 1973). Public Law 94-142, itself, requires educators to make extra considerations for the LD student, e.g., individual educational plans.

In addition to individualizing instruction to guarantee success, providing appropriate rewards for successful efforts is part of the general approach to instructing the learning disabled (Hallahan & Kauffman, 1976; Tarnopol, 1969). The likelihood of teachers rewarding the learning disabled student appears to be minimal considering the increased amount of disapproval (deGroat et al., 1949; Hoehn, 1954), lack of opportunity to respond (Good, 1970; Kranz et al., 1970), and the lack of positive feedback (Good, 1970; Kranz et al., 1970) provided to students who differ on the variables

reviewed above, i.e., personality disorders, underachievement, and dependency.

A lack of teacher approval has been shown to have a detrimental effect on the academic performance of students (Hughes, 1973; Witmer, Bornstein & Dunham, 1971). However, lack of teacher approval may have an even more serious effect on learning disabled students (Rappaport, 1966). Lerner (1976) maintained that the psychological and emotional status of the child with a learning disability has a direct impact on learning. She concluded that "emotional well-being and a favorable attitude are essential prerequisites before effective learning can take place" (p. 330). Evertson, Anderson, and Brophy (1978) recently concluded that although teacher approval seems to be overrated, it continues to be important for low-ability, anxious, dependent students. Eisenberg (1967) has added that increased impatience and an attitude of blame on the part of the teacher intensifies the student's anxiety, frustration, and confusion which brings disastrous consequences to the self-concept.

Siegel (1974) pointed out that the psychological and emotional status of the learning disabled child are of even greater concern in the adolescent and adult years. He considered "prevention of emotional disturbance" to be the chief psychological goal for the learning disabled. Siegel reported that:

> It is by no means uncommon to find a reasonably well adjusted child who, by virtue of having been exposed over a long period of time to such factors as mis-management, inappropriate educational facilities, and a generally hostile and anxiety provoking environment develops severe emotional reactions on reaching adolescence and young adulthood. (p. 132)

Kronick (1969) maintained that the learning disabled individual who has passed childhood and adolescence "is not likely to be penalized or ostracized because of specific learning disabilities, but he will be excluded if his behavior is inappropriate or bizzare" (p. 174). This contention is supported in the literature by Hewett and Forness (1974) who maintained that the real limiting factors for a child with learning disabilities in pursuing a happy and successful adult life are the secondary problems of "accumulated school failure" and "maladaptive behavior."

Most of the literature reviewed above has been conducted with nonhandicapped, elementary-age children. Larsen (1974) pointed out the lack of available research regarding the interactional processes between handicapped students and their classroom teachers, while Brophy and Good (1974) have identified two populations for whom similar interactional data is seriously lacking, i.e., secondary age students and exceptional children in general. The present study proposes to generate data specific to the teacher-student interactions of adolescent learning disabled students and their regular classroom teachers.

Summary

The general thesis of this study is that, because of their personal characteristics in the areas of personality, achievement and dependency, learning disabled adolescents will receive less approval and more disapproval from their regular classroom teachers. In addition, they will recognize this differential treatment and, as a result, will be unhappy in their regular classrooms.

Methodology

Purpose

The purpose of this study was to describe the teacher-student interactions of adolescent learning disabled students and their regular classroom teachers. To describe these interactions, comparisons were made between the interactions of teachers with learning disabled and non-learning disabled students. In addition, the perceptions of learning disabled students regarding the interactions they have with their regular teachers were compared to the observed interactions of these students and their teachers. Finally, the relationships between the interactions of classroom teachers and their learning disabled students and specified teacher and student attributes were also studied. Specifically, the following research questions were posed:

1. What are the differences between the classroom interactions of secondary learning disabled students and their classroom teachers and secondary non-learning disabled students and their classroom teachers?
2. Do learning disabled adolescents perceive their teacher's approval and disapproval behavior accurately? Are LD adolescents happy in their regular classroom?
3. What is the relationship between student attributes and teacher characteristics and the ensuing instructional interactions that take place between students and their teachers?

Subjects

Participants in this study included: (a) 29 learning disabled (LD) adolescents, (b) 29 non-learning disabled (NLD) adolescents, and (c) 29 regular secondary classroom teachers. In order to compare the classroom interactions of LD students and their classroom teachers with the instructional interactions of NLD students and their classroom teachers, "classroom observational units" were identified. Each classroom unit consisted of a regular classroom teacher, an LD student, and a NLD student. The LD student sample was selected from those students identified by the cooperating school district as learning disabled and currently receiving services in the learning disabilities program.

LD Student Sample. The final sample included 29 LD students in grades 9-12. The distribution of LD students across the four grades was: (a) one 12th grade student, (b) four 11th grade students, (c) 13 tenth grade students, and (d) 11 ninth grade students. They ranged in age from 179 to 234 months with a mean age of 197 months (SD = 12 mos.) Twenty-seven were male and three were female. Their IQ range was 80 to 111 with a mean IQ of 94.5 and a standard deviation of 8.2. Reading achievement levels, as measured by the Peabody Individual Achievement Test (PIAT), ranged from the first to the 51st percentile. The mean percentile was 14 with a standard deviation of 15. The average mathematics achievement percentile was the 28th with a standard deviation of 21. Mathematics achievement percentile ranks ranged from the first to 77th.

NLD Sample. The final NLD sample contained 29 students. These students were randomly selected from the same class rosters which

contained the LD target student. The distribution of NLD students across the four grade levels was identical to that of the LD sample. Random selections were made after students had been matched for grade level and sex. The NLD sample ranged in age from 175 to 221 months with a mean age of 192 months and a standard deviation of 11 months. As in the LD sample, 27 were male and three female. Because district policy prevented the gathering and reporting of IQ scores for non-handicapped populations no such scores were available for this study. Percentile rankings for each NLD student in reading and mathematics were based on their performance on Tests of Academic Progress (Pair, n.d.). Reading percentile ranks ranged from the first to the 97th for the NLD student sample. Their mean reading achievement percentile rank was at the 43rd percentile with a standard deviation of 27. In mathematics, their percentile ranks ranged from the fourth to the 86th with a mean ranking at the 48th percentile and a standard deviation of 24 percentile points.

Teacher Sample. Twenty-nine teachers participated in the study. Since each teacher was part of a classroom observational unit, they each had one target LD and one target NLD student enrolled in a section of their regular class teaching assignment. The teacher sample ranged in age from 23 to 61 with a mean age of 38 and a standard deviation of 10.4 years. Teaching experience ranged from one to 28 years ($\bar{x}$ = 13, SD = 6.9). All had BS or BA degrees, while 27 (93%) had master's degrees. All had provisional or permanent certification in their teaching areas and taught in one of four subject areas: science, mathematics, language arts, or social studies.

Informed Consent. Each identified LD adolescent in the cooperating school district (grades 9-12) was considered a potential participant. Forty-five adolescents had been identified as learning disabled. The parents of each LD student were sent an informed consent statement describing the nature of the study and the extent of their child's involvement. Eighty-four percent of the parents approved of their child's participation in the study. This provided the investigators with a pool of 38 LD adolescents from which to select actual participants.

After consent had been obtained from the LD students the next task was to select the regular classrooms and teachers who would complete the observation units. The rosters of the regular classes in which the LD students were enrolled were examined. Thirty classrooms were identified in which only one LD student was enrolled. The purpose of this type of selection process was to eliminate confounding effects of more than one LD student per room and to more precisely isolate teacher behavior toward a single LD student. Classes which contained any other type of handicapped student were also eliminated from participation. After potential classrooms were identified, the classroom teachers were asked to participate in the study. All regular teachers consented to participate.

The next step involved matching the LD target student in each class with at least five randomly selected NLD students of the same grade and sex. Consent forms were then sent to the parents of all selected NLD students. As consents were received for the NLD students, they were designated as potential NLD target students. Where consent was granted for more than one NLD student per regular class, the

final selection of a target student was made randomly. Due to scheduling problems, one observational unit was dropped. The final number of observational units was 29.

Incentives. Each regular teacher was paid $10 for participation. Participation involved: (a) supplying demographic data, (b) completing an attitude questionnaire, (c) completing a behavior rating scale on the LD and NLD students, and (d) permitting observations to be made during class sessions. LD and NLD students were not provided with incentives to participate in the study.

Setting

This research was conducted in two high schools of the cooperating district. All observational data were collected in the 29 regular classrooms described in the previous section. They were traditional classrooms seating approximately 30 students. Each teacher provided observers with seating charts which allowed the identification of target LD and NLD students. Observers sat quietly to the back and side of the classrooms, affording the best possible view of the target students. Observers were not identified to the class, nor did they speak to the students or teachers. Each observer had all recording equipment with them. When two observers were in a room at the same time, they never spoke. At the end of the recording period, they left together.

Measurement Systems

Instruments used with teachers. Three instruments were used with teachers. They were: (a) Demographic Information Form, (b) the Attitude Toward Handicapped Individuals Scale (Lazar, 1973), and (c) the Devereux Adolescent Behavior Rating Scale (Spivak, Haimes, & Spotts, 1967).

The Demographic Information Form asked teachers to supply relevant background data regarding teacher training and experience. Teachers were asked to supply the following:

1. age
2. sex
3. academic area of teacher training
4. years of teaching experience
5. credit hours beyond bachelor's degree
6. type of certification
7. special education coursework
8. contact with handicapped individuals

To measure the attitudes of the regular classroom teachers toward their learning disabled students, a modification of the Attitude Toward Handicapped Individuals Scale (ATHI) was used. The ATHI is itself a modification of the Attitude Toward Disabled Persons Scale-Form O (ATDP), (Yuker, Block, & Campbell, 1960). Shaw and Wright (1967) classified the ATDP as a measure of attitude toward the "physically disabled." They reported split-half reliabilities for the ATDP ranging from .78 (N=72) to .84 (N=110). They further noted that:

> The ATDP has reasonably good content validity, and additional evidence is provided by correlation of ATDP scores with other scales. Significant correlations were found between ATDP and semantic differential scores (.266), scores on a job satisfaction scale (.463), and the Edward Personal Preference Schedule (.252)... The authors of this scale have done a considerable amount of work on it and the supporting data are better than for most scales. There is still some question concerning its validity, but it seems adequate for research purposes. (pp. 481)

Lazar's modification of the ATDP involved substituting the term "handicapped individuals" for the term "physical disabled." The rationale for this change was to give the ATHI a more general meaning than the concept "physically disabled" would allow. It was

felt that the term "handicapped individual" would be more general in nature and lend itself to the study of attitudes toward other exceptional groups in addition to the physically disabled.

Stodden, Graves, and Lazar (1973) found a significant positive relationship ($r = .802$, $p<.01$) between the ATDP and the ATHI. They also reported a coefficient of stability (test-retest) for the ATHI of .732 (p .01) using a two-week separation between test and retest. This latter finding was consistent with the median of eight separate estimates of the stability of the ATDP (i.e., .73) as reported by Yuker, Block, and Young.

The ATHI consists of 20 items, each being rated on a six point Likert-type scale, weighted as follows:

+3	I agree very much
+2	I agree pretty much
+1	I agree a little
-1	I disagree a little
-2	I disagree pretty much
-3	I disagree very much

The possible score range is from 0 to 120. Higher scores are interpreted as denoting a more favorable attitude toward the attitude object (Shaw et al., 1967). Lazar reported that scores of 70 and above on the ATHI should be interpreted as positive attitudes toward handicapped individuals (DeBoer, Green, Lazar, & Haughton, 1974).

The modification of the ATHI for the present study involved providing each respondent with an operational definition of "handicapped individuals". Handicapped individuals were defined as follows: "students who have been enrolled in your classroom and have been identified as having a learning disability. Specifically, students like _____(LD student's name)." Therefore, the

attitudes measured were specific to the learning disabled population in general and to the actual LD student enrolled in the teacher's class in particular.

The third instrument used with teachers, the Devereux Adolescent Behavior Rating Scale (DAB) (Spivak, Haimes, & Spotts, 1967), was designed to describe a broad range of adolescent behaviors. The scale contains behaviors which have been divided into 15 problem-behavior dimensions. The scale is written in nontechnical language in order to serve in a variety of settings with a variety of raters. It was designed to describe problem behaviors of adolescents between 13 and 18 years of age.

Instructions for completing the scale are explained in detail on its front cover. This guide suggests that the rater should rate, whenever possible, recent behavior (within the last two weeks) and that the standard for comparison should be the "average normal adolescent that age."

The scale itself consists of 84 items. The first 57 items are rated on a scale of 1-5 while items 58-84 are rated on a scale of 1-8. The rater is strongly urged to answer all items. However, if the rater is unable to rate a specific item, he/she is instructed to circle the item and leave it blank.

After the scale has been completed by the rater, a behavior profile can be constructed. Each answer is recorded along with answers to other items that together form a behavior cluster. All items within a cluster are summed to form a cluster raw score. Each total is then plotted on a scale line. After all have been plotted, one can then connect the plotted points to yield a graphic repre-

sentation of the youngster's behavior. If an item has been left unanswered by the rater, a standard pro-rating technique is used to yield the cluster score.

The scale lines used for the plotting of the cluster scores have been marked to depict at a glance how a youngster's score compares with the mean, and up to +3 and -3 standard deviations of the norming group. Several norming groups were provided, however, only the "normals-living at home" group (N=305) was used for comparative purposes in this study. The authors reported reliability coefficients of .82 (test-retest) and .81 to .90 (inter-rater agreement) (Spivak et al., 1967).

For purposes of this study, three of the 15 behavior clusters were used. They were: (a) defiant-resistive, (b) hyperactivity-expansive, and (c) needs approval-dependency. Each behavior cluster is scaled separately and has its own distribution with mean and standard deviation. Again, scores attained in this study were compared to the "normal-living at home" standardization sample.

Instrument used with students. The Teacher Approval-Disapproval Scale (TADS) (Whaley & Loney, 1974) was administered to all target LD and NLD students. The TADS was used to generate three separate types of information: (a) the amount of student perceived teacher approval behavior, (b) the amount of student perceived teacher disapproval behavior, and (c) student attitude toward regular class placement in terms of the amount of time the student reported being happy in or enjoying his/her classroom placement.

The TADS was originally designed to determine if students could detect changes in the frequency of teacher approvals and disapprovals

produced by an inservice workshop in behavioral teaching methods, and if a more positive classroom atmosphere would favorably affect the students' attitudes (Whaley et al., 1974). The TADS consists of simply-worded statements to which the student responds: "none of the time," "some of the time," "most of the time," or "all of the time." These responses are given scores of 0, 1, 2, and 3 points, respectively. Items tap the respondent's estimates of the amount of teacher approval and disapproval displayed for academic and social behaviors by the student and his peers.

Table 1 gives the wording of the TADS items and summarizes the various classifications to which they can be assigned. The teacher response classification addresses teacher approval and disapproval of specified student behaviors; that is, whether the teacher likes or doesn't like what is done by the student(s). The student behavior classification deals with academic behavior (the school work that is done), motivational behavior (the way the work is done), or social behavior (the way the student acts). Items in the student attitude classification center around student happiness or unhappiness in the classroom. Finally, each item can be classified as focusing on the behavior or attitudes either of the entire class or of the individual student.

Eleven of the 23 items are individual in nature; that is, they ask the student to estimate the frequency of certain teacher behaviors toward himself/herself personally, or the extent to which he/she is or is not happy in the classroom. Each of these 11 individual items

TABLE 1

ITEMS OF THE TEACHER APPROVAL-DISAPPROVAL SCALE (TADS)

Items Concerning	Teacher Response	The Class as a Whole	The Individual Student
Student Behavior			
Academic	Approval	The teacher likes the school work the class does.	The teacher likes the school work I do.
Motivational	Approval	... the way the class works.	... the way I work.
Social	Approval	... the way the class acts.	... the way I act.
General	Approval	My teacher praises students.	My teacher praises me.
Academic	Disapproval	The teacher doesn't like the school work the class does.	The teacher doesn't like the school work I do.
Motivational	Disapproval	... the way the class works.	... the way I work.
Social	Disapproval	... the way the class acts.	... the way I act.
General	Disapproval	My teacher punishes students.	My teacher punishes me.
Student Attitudes			
Enjoyment		Students enjoy being in this class.	I enjoy being in this class.
Happiness		The students in my classroom are happy.	In my classroom I am happy.
Unhappiness		... are unhappy.	... I am unhappy.

has a counterpart which asks the student to estimate the frequency of the same teacher behaviors toward the class as a whole or to assess the happiness of the class. Thus, the mean for an individual item reflects the students' estimates of the amount of time that a particular teacher behavior is directed toward themselves as individuals or the amount of time they personally feel happy or unhappy. In contrast, the mean for a class item reflects the students' estimates of the amount of time that a particular teacher behavior is directed toward the class as a whole or of the amount of time that the class as a group feels happy or unhappy. For purposes of this study only academic and social approval and disapproval directed toward the individual student were considered.

Administration of the TADS instrument requires that the student read and respond to the 23-item questionnaire. Because of inherent difficulties in administering this type of instrument to an LD population the administration procedures were altered for the present study. For example, many students would experience difficulty reading the items. Yet, having someone read the items to the students was not acceptable because the possibility existed that some students might bias their responses if an examiner were present. To account for both of these administration concerns, an audio-tape format was used. Students, using headphones for absolute privacy, responded to the items based on both auditory and visual stimuli. Students were instructed to replay an item if it was not understood. All students were instructed in the operation of the audio-tape unit.

Reliability data on the TADS were obtained from a sample of 144 males and 166 females attending 10 fourth-grade classes. With

administration seven days apart, test-retest reliability coefficients were significantly different from zero at the .001 level for 21 out of 23 items in the male group and for 20 out of 23 items for the female group. The generalized Spearman-Brown formula was used to obtain test-retest reliabilities of .81 for a hypothetical subtest containing the four individual approval items, .72 for a subtest containing the four individual disapproval items, and .76 for a subtest containing the three individual student attitude items (Whaley-Klahn, Loney, Weissenburger, & Prinz, 1976). Only these items were used in the present study.

Observation System

A frequency-based, interval recording system of observation was designed to measure the interactions that took place between teachers and target students (see Reference Note 1). Six general areas of classroom behavior were accounted for within the system. Observations of teacher-target LD and teacher-target NLD students were divided into: (1) teacher-approval, (2) teacher-disapproval, (3) teacher reactions to students response when called on, (4) teacher reactions to student's self-initiated response (volunteers answer), (5) teacher response to target student's request for help, and (6) the number of teacher-initiated acts of assistance to a target student.

For purposes of recording precision and more meaningful analysis, the categories were further subdivided according to the quality (i.e., positive, negative and neutral teacher responses) of the interactions. Definitions of the categories of the observation system are presented in the following paragraphs.

Teacher approval, delivery of praise or acknowledgement, was subdivided into academic and social approval (i.e., approval for academic related or non-academic related events, respectively) and verbal or non-verbal approval (i.e., vocal or non-vocal teacher praise). Thus, for the first major interactional category, the teacher's response was classified into one of four sub-categories. This allowed for more precise evaluation of teacher approval.

The same sub-divisions existed for teacher disapproval. Here, observers counted teacher verbal and non-verbal acts of non-acceptance, disappointment, or criticism toward the target student's social and academic behavior.

Called On was a category signifying those instances where the target student was asked to perform a task without first volunteering. The distinction between those times when a teacher called on particular students to perform an activity (e.g., answer a question) versus those times when the teacher responded to the student's request (volunteer) to perform the task was critical to evaluating the nature of the teacher's interactions with students. To evaluate the instances where students were called on to perform tasks to which the teacher responds, this category was sub-divided into positive, negative, and neutral teacher reactions. A positive teacher reaction was one where the student is praised or encouraged following his/her answer. A negative teacher reaction is one which connotes disappointment or disdain following the student's answer. A neutral reaction was characterized by the teacher ignoring (i.e., not responding to) the student's answer.

Since these qualitative definitions were designed to include the full array of positive, negative, and neutral teacher reactions, occassionally the entire staff was forced to deliberate and decide on indistinct teacher reactions. For instance, when, in response to a student's answer, the teacher merely repeated the answer or wrote the answer on the chalkboard the reaction was not immediately classifiable as a positive or neutral response. In this particular case, since merely repeating the student's answer did not in itself connote a positive or negative reaction, the interaction was recorded as neutral. However, future researchers may wish to consider that merely evoking the teacher's response to a student activity is sometimes regarded positively by many students in which case, a redefinition of the response class may be in order. Desiring to keep all response classes as objectively-defined as possible, we rated each response according to critical topographical features, for example, when teacher's responses were not readily classifiable on the basis of wording or intonation, facial expressions and/or physical gestures were sometimes helpful in classifing the response. Yet, most often, teachers were clear in their positive and negative interactional responses.

Teacher reactions to student <u>volunteered</u> answers were recorded using a similar qualitative breakdown. That is, when a student volunteered an answer to a question directed to the entire class, observers prepared themselves to record a possible <u>volunteer</u> teacher response. However, since no interaction took place until the teacher acknowledged the student's volunteered answer, not all requests fell into this category. Again, observers noted whether the teacher's

reaction was positive, negative, or neutral (no reaction other than repeating the student's answer). This qualitative distinction can provide useful information concerning the ways in which LD and NLD students volunteer answers and how student and teacher behaviors differ when students are called on as opposed to when they volunteer responses.

The next category concerned the way in which particular teachers reacted to student requests for help. It is possible that LD students seek help, assistance, and information from teachers more or less frequently then do NLD students. In such cases, receptivity by the teacher can be of prime importance. Since it has been demonstrated that teachers respond less favorably to students who demonstrate lower academic achievement it might be expected that teachers will discriminate against some students despite their greater need. To begin to answer these potential inhibitory interactions, the frequency and quality of teacher reactions to target student requests for help were evaluated. Here, the number of teacher positive, negative, and neutral (none) responses to LD and NLD requests for help were recorded.

Finally, observers recorded the number of times in which teachers initiated assistance toward the target LD versus the target NLD student. This category provided another index of the teacher's willingness to encourage and enhance the LD student's learning. It is important to note that in this category, the teacher initiated his/her assistance rather than responding to a student's request. As such, assistance could be given at anytime during any classroom activity.

The 18 types of interactions just described correspond to the 18 original categories of the observation system. The following 12 interactional variables represent combinations of these original 18 categories and were used as additional dependent variables.

Social Approval was the combination of verbal and nonverbal approval for non-academic behavior, while Social Disapproval was the combination of verbal and nonverbal social disapproval. Called On, Volunteers Answer, and Requests Help each represented the combination of positive, negative and neutral teacher responses to those behaviors, respectively.

There were two kinds of academic approval and disapproval represented within the original 18 categories. The first type was labeled Academic Approval General and referred to teacher behavior that is not contingent upon a specific student behavior. This combined variable represented the combination of verbal and nonverbal academic approval. Correspondingly, Academic Disapproval General was the combination of verbal and nonverbal academic disapproval. The second type of academic approval and disapproval referred to a teacher response to a specific student or teacher academic behavior. The two behaviors which trigger teacher behavior were a student volunteering an answer and a teacher calling on a student for an answer. Therefore, Academic Approval Specific represented the combination of the two original categories of Called On Positive and Volunteers Answer Positive. Academic Disapproval Specific, on the other hand, represented the combination of Called On Negative and Volunteers Answer Negative.

The next two combined variables were Academic Approval Total and Academic Disapproval Total. These two categories represented the combination of Academic Approval General and Academic Approval Specific, and Academic Disapproval General and Academic Disapproval Specific, respectively. The last combined category, Academic Ignore Specific, represented the combination of the neutral teacher responses of three original categories, i.e., Called On, Volunteers Answer, and Requests Help. The total set of original (18) and combined (12) categories represented 30 dependent variables which were used to compare the teacher-student interactions of both groups of students.

The original design of the study called for two 55-minute observations per classroom. However, due to short bell schedules, tardiness, and absenteeism, this was not possible in all cases. The total number of minutes observed per classroom ranged from 35 to 110. The average number of minutes observed per class was 88.

The direct classroom observation of student-teacher interactions employed a frequency-based interval recording procedure. Rather than counting only the first interaction to occur every 10 or 15 seconds (as is common to time-sampling procedures), the total class period (55 minutes) was divided into 55 one-minute intervals during which every teacher-target student interaction was recorded. This procedure offered obvious advantages over time-sampling procedures. Most importantly, it enabled the investigator to compute a sensitive reliability index between the observers as well to gain a representative count of the frequency and duration of interactions which actually occurred during the entire class period. (For more

information concerning this measurement procedure, see Loomis, 1931, Foxx & Azrin, 1973; and Cooke & Appolini, 1976).

In order to provide information concerning the amount of time or opportunity for interactions to occur, the duration of interactions, and an accurate perspective from which to compare student and teacher behaviors as well as characteristics of each class, all daily frequencies were evaluated according to interactions-per-minute. This standard time unit was selected for evaluation purposes because it facilitated the comparison of interaction frequencies of varying durations across observational periods which were uncontrollably of variable length. That is, although class periods were typically 55-minutes long, occasionally, special school or class events would lengthen or shorten the observation time. When reduced to number-per-minute, interaction rates could easily be compared in a standard perspective.

Also, number-per-minute reductions provided one further advantage. Other researchers had selected number-per-hour (Hart & Risley, 1968; Lahey, McNees, & McNees, 1973; Porterfield, Herber, Jackson, & Risley, 1976; Risley, 1968) or number-per-day as their observation time dimension. However, since these time units may be too broad to adequately reflect behaviors which occur for considerably less than an hour or a day, number-per-minute units represented a more useful time frame from which to evaluate and compare behaviors.

Recording apparatus. In order to record the frequencies for each of the six major interactional catergories (plus their subdivisions) a special scoring sheet was designed (Appendix A). Each sheet represented 5-minutes of recording time. The abscissa of each

sheet was divided into two sections of five one-minute intervals---one section for the targeted LD student and the other for the targeted NLD student. Thus, a 55-minute class period was recorded in the 55 intervals contained in 11 recording sheets.

On the ordinate of the recording sheet were spaced the six major interactional categories. In addition, each major category was further divided according to its qualitative subcategories; e.g., the "called on" major category actually had separate rows for positive, negative, and neutral teacher reactions. In other words, small boxes representing one-minute of observation time for each of the categories and subdivisions were designed within which observers would record the total number of interactions occurring each minute.

Even with the small-box design, the recording sheet appeared quite complex. Rather than deleting categories or enlarging the recording intervals in order to simplify the recording procedures, an acetate overlay was built to slide atop the recording sheet. First, a plastic acetate sheet holder was purchased. This clear holder was built to hold in place 8½ x 11"-sized paper and acetates. Because one side of the holder was unrimmed, papers and acetates could be slid in and out easily. Next, a lightly-tinted acetate was cut horizontally so that only two columns of intervals (one for LD and one for NLD) were exposed for each category at a time. By marking only in the open spaces on the recording sheet observers could be certain to avoid inaccurate tally marks. When the interval changed, the acetate was simply slid over ¼-inch to expose a new column of intervals. Once the five-minute sheet was completed, it was removed and the sheet underneath exposed. Finally, a hole was cut on the left

side of the acetate so that by depressing the thumb, observers could slide the acetate back and forth without disturbing the placement of the recording sheet. This recording device greatly simplified the necessarily complex recording process. Using this system, observers were able to simultaneously record 18 different interactional and instructional variables for two students reliably in 55 one-minute intervals.

Observer placement. Since the teachers typically had designated seating arrangements for all students in the class, observers, using the teacher's regular seating chart, were able to locate and observe the target students. To avoid attracting unnecessary attention, observers sat quietly to the back and side of the classroom in positions affording full view of the entire classroom. The observers were never identified to the class and did not speak to students or teachers. Each observer had his/her own stopwatch, set of recording sheets, and one recording holder.

Reliability assessment. According to Hersen and Barlow, "the careful investigator should be aware that the reliability index not only reflects the degree of inter-observer agreement obtained, but also is a function of the type of reliability index used" (1976, p. 115). Recently, a great deal of attention has been directed to the matter of the appropriateness of reliability indices calculated on the basis of: (a) scored intervals (i.e., scoring only those intervals for each category in which at least one behavior was recorded), (b) unscored intervals (i.e., only those intervals in which no behavior in that category occurred), or (c) scored plus unscored intervals (all intervals counted). Hawkins and Dotson

(1975) noted that the use of any of the three indices cited above is dramatically affected by high- or low-frequency behaviors and suggested that evaluations of the coefficients calculated from extremely high-rate or low-rate behaviors be evaluated with caution.

Realizing that the interactional behaviors being recorded in this study were severely low-rate, and that scored-interval only and unscored-interval only reliability formulas were not only overly conservative (given current applied research practices) but highly variable with low-rate behaviors (Hawkins & Dotson, 1975), the interval-by-interval formula was used. Here, all intervals were counted. An agreement was scored when the two observers reported the same number of the behaviors occurring in identical intervals and a disagreement was scored when either a different number of occurrences for each behavior was recorded per interval or when one observer scored at least one occurence while the other scored none.

This formula can be viewed as containing a highly stringent criterion for calculating inter-observation agreement. The stringency is enhanced when we consider that, in deference to interval-by-interval, time-sampling procedures in which only the first occurrence of the behavior per interval is recorded (i.e., either $\pm$ or $\underline{o}$ is scored leaving a chance correct figure of 50%), a frequency within an interval reliability formula allows a lower and more conservative chance figure.

Using this more stringent frequency within an interval recording system, the reliability formula for calculating agreement between two independent observers was:

$$\frac{\text{Agreements}}{\text{Agreements + Disagreements}} \times 100 = \text{percentage of agreement}$$

(Bijou, Peterson, & Ault, 1968).

Training of Observers. Eight research assistants were trained in the observation system. Training was accomplished by: (a) designing a training manual, (b) providing video taped training exercises, (c) providing discussion sessions, and (d) providing live observational training experiences.

A training manual provided operational definitions of each behavioral category accompanied by examples of each. Each observer trainee read the manual before the first training session (see Appendix A). The first training session was subdivided into: (a) general introduction, (b) discussion, (c) viewing of videotapes of secondary classrooms without coding, (d) discussion of behaviors, (e) observation coding of the same videotapes, (f) reliability checks and (g) discussion of disagreements. This procedure was repeated until .90 reliability was reached using the videotapes.

Following the training sessions (8 hours total), actual classroom observations were used in the same training sequence in place of the videotapes. Each observer trainee observed a total of four hours in actual secondary classrooms in the cooperating district. Data collection was not initiated until 90% reliability was reached in the classroom practice observations. Throughout the study 20% of all observations were checked for the maintenance of the level of reliability. This resulted in an overall reliability figure for all data collected of .91.

Design/Analysis

Mitzel (1960) and Dunkin and Biddle (1974) have identified four types of variables of interest in studies of teaching. Presage variables represent teacher characteristics, such as, age, sex, years of experience, training, attitude, etc. The second type are described as context variables. These include grade level and subject mater as well as descriptors related to students, e.g., age, sex, ability, etc. Process variables, the third variable set, represent descriptions of the teaching-learning process. These variables deal with the ways in which teachers and students behave and interact. The last type of variable, product or outcome variables, denote changes in learning, adjustment, attitude or performance.

Gage (1978) identified six possible pairings of these variables and thus six possible kinds of relationships to be used in the study of teaching: (a) context-process, (b) context-product, (c) presage-process, (d) presage-product, (e) context-presage, and (f) process-product. He also reported that "much effort has been expended on the study of process occurrence in itself" (p. 23).

Four of these research paradigms were used in the present study. The first research question employed the process paradigm. The intent was to analyze the process of teaching in relation to the interactions of LD students and their teachers. The second research question was addressed by using the process-product design. Here, the relationship between teacher-student interactions (process) and student attitude toward regular classroom placement (product) was of concern. Two separate paradigms were used to answer the third research question. The presage-process design was used to search for

relationships among teacher characteristics and the interactions they have with students. Next, the relationships among student attributes (context) and teacher-student interactions were analyzed using the context-process paradigm.

As field survey research, the purpose of this study was to identify relationships among the variable sets described above. The ultimate goal, according to Dunkin and Biddle, is to use the relationships to experimentally validate potential independent variables. Analyses are described separately to each research question in the following sections.

Research Question One. To determine if LD adolescents were treated differently by their regular classroom teachers, two separate analyses were conducted. The first analysis compared the frequency of occurrence of 30 specific teacher-student classroom interactions. A series of 30 t-tests were conducted using the BMDP3D computer program (Dixon, 1975). The rationale for using separate t-tests in the analysis rather than one ANOVA was that the 30 variables addressed specific questions of difference that were hypothesized from the research literature.

The second analysis was concerned with the proportion of occurrence of 11 types of interactional behavior. Nine of these comparisons used Chi-square analyses to test for discrepancies between expected and obtained proportions. Two additional Chi-square analyses were conducted to test for independence of group membership between the LD and NLD groups. The second analysis was conducted to add additional information about classroom interactions as well as to further validate the findings of the first analysis.

Before these analyses were conducted, however, five comparisons between the LD and NLD groups were made. These anlyses compared the two groups with respect to five control variables. The control variables included: (a) reading achievement, (b) mathematics achievement, (c) defiance-resistance, (d) hyperactivity, and (e) dependency or the need for teacher attention and approval. These analyses were conducted to verify if differences on these variables existed between the two groups. Again, the BMDP3D statistical package was used to conduct t-tests.

Research Question Two. After the frequency and proportion of occurrence of specified teacher-student interactions for the two groups had been determined, the responses of each group of students to the TADS instrument were compared. Three sets of TADS scores were used in the analysis. They were the students' perception of the amount of time he/she: (a) felt the teacher approved of him/her as an individual, (b) felt the teacher disapproved of him/her as an individual, and (c) felt happy in or enjoyed the regular classroom. Using the BMDP2V computer program, the responses of the LD and NLD students to the TADS instrument were subjected to a two-way analysis of variance with repeated measures on one factor. A 2 x 3 analysis for: (a) classification (LD and NLD) and (b) type of interaction (individual approval, individual disapproval, individual happiness) was conducted using the TADS data (N=58).

Research Question Three. The third research question was concerned with specific teacher and student attributes that predicted specific types of teacher behavior toward students in class. Two separate canonical correlation analyses were conducted using: (a)

total academic approval, (b) total academic disapproval, (c) total social approval, and (d) total social disapproval as dependent variables. Independent variables for teachers in the first analysis included: (a) age, (b) sex, (c) level of training, (d) years of teaching experience, (e) special education credit hours, (f) previous personal contact with handicapped individuals, (g) length of contact with handicapped individuals, and (h) attitude toward LD students. Independent variables for students included: (a) classification (LD or NLD), (b) reading achievement, (c) mathematics achievement, (d) defiance, (e) hyperactivity, and (f) dependency. The canonical correlations were conducted using the BMDP6M computer program.

Results

Research Question One

This research question was answered by stating 30 null hypotheses of no significant differences between the LD and NLD groups on the frequency of specified teacher-student interactions. The 30 null hypotheses corresponded to the 18 original observational categories and the 12 combined categories (listed in Table 2). Each null hypothesis was stated as follows with the appropriate teacher-student interaction inserted in the blank space.

"There will be no significant difference in the frequency of _____ between the LD and NLD groups."

It can be seen from Table 2 that none of the 30 hypotheses of no difference were rejected. Table 2 presents the type of classroom interaction, the means and standard deviations for both groups, and the *t*- and *p*-values for each comparison.

Insert Table 2 about here

In regard to the frequency of each type of teacher-student interaction, it appears that teachers are consistent in the frequency with which they interact with LD and NLD students. Two of the 30 variables were student initiated interactions, i.e., Volunteers Answer (22) and Requests Help (23). The frequency of these student initiated behaviors was also consistent between the two groups.

Tables 3 through 12 report the results of the 11 Chi-square analyses. The analyses reported in Tables 6 and 11 are tests for independence of group membership, while the remaining tables represent tests for the discrepancy between expected and obtained frequencies. Comparisons of verbal and nonverbal academic and social interactions were not made since nearly all academic (99.7%) and social (96%) interactions for both groups were verbal.

The first Chi-square analysis compared the frequency of academic and social interactions for all students. As can be seen from Table 3, there were significantly more academic interactions for all students.

Table 3

Academic Versus
Social Interactions for All Students

	Type of Interaction	
	Academic	Social
Obtained Frequency	313	51
Expected Frequency	182	182

$\chi^2 = 87.14$; $p < .001$

Tables 4-8 provide a further analysis of social interactions. Table 4 indicates that, for all students, significantly more social interactions were negative than would be expected.

Table 4

Positive Versus Negative
Social Interactions for All Students

	Type of Interaction	
	Positive	Negative
Obtained Frequency	11	40
Expected Frequency	25.5	25.5

$\chi^2 = 15.361$; $p < .001$

Table 5 indicates that the total amount of social interaction between teachers and students was evenly distributed among LD and NLD students. This finding is consistent with the results of the first set of analyses presented in Table 2.

Table 5

Social Interactions
for LD Versus NLD Students

	Group	
	LD	NLD
Obtained Frequency	22	29
Expected Freuqency	25.5	25.5

X^2 = .706; n.s.

The analysis represented in Table 6 demonstrates that the proportion of social interactions directed toward LD and NLD students, respectively, was not significantly different. Again, this finding is consistent with the first analyses. However, when the proportion of positive versus negative social interactions for the two groups was analyzed separately (Tables 7 and 8), it can be seen that the NLD students were involved in significantly more negative than positive social interaction with their teachers, whereas the LD students' proportions of positive and negative social interactions were not significantly different.

Table 6

Positive Versus Negative
Social Interactions for LD and NLD Students

Type of Social Interaction

	Positive	Negative
LD	7	15
NLD	4	25

$\chi^2 = 2.4$; n.s.

Table 7

Positive Versus Negative
Social Interactions for LD Students

Type of Interaction

	Positive	Negative
Obtained Frequency	7	15
Expected Frequency	11	11

$\chi^2 = 2.22$; n.s.

Table 8

Positive Versus Negative
Social Interactions for NLD Students

Type of Interaction

	Positive	Negative
Obtained Frequency	4	25
Expected Frequency	14.5	14.5

$\chi^2 = 13.79$; $p < .001$

Tables 9-13 provide a further analysis of academic interactions among teachers and both groups of students. For purposes of these analyses, "neutral" teacher responses to students' academic behavior were omitted. Table 9 indicates that, for all students, positive academic interactions significantly outnumbered negative interactions.

Table 9

Positive Versus Negative Academic Interactions for All Students

	Positive	Negative
Obtained Frequency	234	13
Expected Frequency	123.5	123.5

$\chi^2 = 195.96$; $p < .001$

Table 10 indicates that LD students received more of the total amount of academic interactions than the NLD students. This appears to contradict the first set of analyses (Table 2) which indicated no difference between the groups for either academic approval or academic disapproval. However, while the first analyses tested for differences between the two groups in the frequency of specific academic approval or disapproval interactions, respectively; this analysis combined the total frequency of academic approval and disapproval.

Table 10

Total Academic Interactions for LD Versus NLD Students

	LD	NLD
Obtained Frequency	141	106
Expected Frequency	123.5	123.5

$X^2 = 4.68$; $p < .05$

However, Table 11 presents data which demonstrate that the proportion of positive versus negative academic interactions for LD and NLD students, respectively, was not significantly different.

Table 11

Positive Versus Negative Academic Interactions for LD and NLD Students

	Positive	Negative
LD	132	9
NLD	102	4

$X^2 = .83$; n.s.

When the two groups are analyzed separately for frequency of positive and negative academic interactions (Tables 12 and 13), it is clear that both groups received a significantly larger proportion of positive interactions than negative interactions.

Table 12

Postive Versus Negative
Academic Interactions for LD Students

	Type of Interaction	
	Positive	Negative
Obtained Frequency	132	9
Expected Frequency	70.5	70.5

$X^2 = 105.56$; $p < .001$

Table 13

Positive Versus Negative
Academic Interactions for NLD students

	Type of Interaction	
	Positive	Negative
Obtained Frequency	102	4
Expected Frequency	52	52

$X^2 = 90.51$; $p < .001$

The last set of analyses conducted in relation to the first research question were concerned with the difference between the LD and NLD

groups on selected control variables. The variables, means and standard deviations, t-values and p-values are presented in Table 14. As indicated there were no significant differences in the teacher's ratings of the groups on the behavioral control variables (i.e., first three). The expected differences in reading and mathematics achievement were substantiated.

Table 14

Summary of Control Variable Comparisons

Control Variable	LD		NLD		t	p
	Mean	SD	Mean	SD		
Defiant-Resistive[1]	-.748[2]	1.367	-.838	1.635	0.23	.819
Hyperactivity-Expansive	-1.039	1.016	-.821	1.303	-.72	.475
Needs Approval-Dependency	-.437	1.414	-.569	1.407	.36	.723
Reading Achievement[3]	13.786[4]	14.736	42.966	26.940	-5.05	.001
Math Achievement	28.464	21.386	47.931	24.073	-3.22	.002

[1] The first three variables are from the Devereux Adolescent Behavior Rating Scale.

[2] Reported in z-score units for normal adolescents living at home.

[3] LD achievement scores from the Peabody Individual Achievement Tests; NLD scores from Tests of Academic Performance.

[4] Reported in percentile rankings

Research Question Two. The second research question asked if LD students perceived their teachers' behavior toward them accurately and if they were happy in their regular classroom placement. The means and standard deviations for TADS responses for both groups of students are presented in Table 15.

Insert Table 15 about here

The analysis of variance for TADS scores produced three significant F-ratios as presented in Table 16.

Insert Table 16 about here

These were (a) the main effect for classification (LD or NLD) ($p < .05$), (b) the main effect for type of perception (approval, disapproval and happiness) ($p < .001$), and (c) the interaction of classification and type of perception ($p < .01$). The significant main effect for classification indicates that the two groups responded differently to the three repeated measures. A significant difference in responses among the three repeated measures with both groups combined is indicated by the significant main effect for "type of perception". Finally the significant interaction indicates that each group responded differently across the three repeated measures. To identify where these significant differences occurred between the two groups across the three repeated measures, tests of the simple effects for approval, disapproval and happiness were conducted. These tests are summarized in Table 17 and reveal significant differences between

LD students and NLD students on approval ($p < .05$) and happiness ($p < .01$). The difference between the two groups on the disapproval measure was consistent with, and in the same direction as, the differences in approval and happiness but did not reach statistical significance at the .05 level.

Insert Table 17 about here

Figure 1 displays the statistical interactions of the two groups across the three repeated measures.

Insert Figure 1 about here

Research Question Three. The third research question asked if teacher approval and disapproval behavior toward students could be predicted from knowledge of teacher attributes or student attributes. For both teachers and students, specific attributes were correlated with the teacher behavior variable set that included: (a) social approval, (b) social disapproval, (c) academic approval, and (d) academic disapproval.

The variables of the teacher behavior variable set were correlated with the following student variables: (a) classification, (b) reading achievement, (c) math achievement, (d) defiance, (e) hyperactivity, and (f) dependency. Bartlett's Test (Bartlett, 1947) indicates the number of canonical variables necessary to express the dependency between the two sets of variables. The necessary number of canonical variables is the smallest number of eigenvalues such

that the test of the remaining eigenvalues is non-significant. Application of this test indicated that none of the canonical correlations were significant.

The following teacher variables were correlated with the teacher behavior variable set: (a) age, (b) sex, (c) levels of training, (d) teaching experience, (e) number of special education credit hours, (f) contact with handicapped individuals, (g) length of contact with handicapped individuals, and (h) attitude toward learning disabled adolescents. Application of Bartlett's test indicated that none of the canonical correlations were significant.

The frequency of teacher-student interactions for LD and NLD students were combined for the analysis of student variables because of the lack of a statistical difference between the two groups on any of the 30 interactional variables presented under the first research question.

No significant correlations could be identified between any combinations of teacher or student variables and the frequency of teacher approval and disapproval behavior. To further the search for relationships between personal attributes in students and teachers and the frequency with which they interacted in class, two separate correlation matrices were generated. These matrices are contained in Appendix B.

Only two meaningful significant correlations were identified. They were both in regard to student attributes. A .44 correlation between academic approval and the teacher's rating of the student's level of hyperactivity and a .49 correlation between the teacher's ratings of the student's levels of hyperactivity and defiance (r =

.33 at alpha = .01). In the first case it would appear that teachers provide more academic approval to students who are active in class. The second significant correlation appears to indicate a relationship between the teacher's rating of level of hyperactivity and degree of defiance displayed by students. Interpretations of these correlations should be made cautiously due to problems of error rate associated with multiple tests.

Discussion

The first analysis of data collected to answer the first research question indicated that, in terms of absolute frequency of teacher-student classroom interactions, teachers interacted with LD and NLD students with comparable frequency. This was unexpected since the general hypothesis of this study was that because of the personal attributes of LD students (i.e., underachievement, dependency, hyperactivity, and possible defiance), teachers would approve of them less often and disapprove of them more frequently. This clearly was not the case.

These findings, however, do not totally contradict the relationship between teacher approval and disapproval behavior and student attributes. The position of several researchers regarding the effect of student attributes on teacher approval and disapproval behavior (Brophy & Good, 1974; Feshback, 1969; Tikunoff et al., 1975) cannot be contested by these findings since teachers did not rate LD and NLD students differently on level of hyperactivity, defiance, or dependency. However, the position that underachievers receive differential treatment (deGroat et al., 1949; Good, 1970; Hoehn, 1954; Kranz et al., 1970) is at least questioned by these results.

The fact that the teachers in this study did not rate LD students as being more hyperactive, defiant, or dependent than the NLD students was an important and unexpected finding. The comparable behavioral ratings of LD and NLD students by their regular class teachers is a significant finding that has implications for the traditional view of LD students, particularly in regard to the ability of teachers to maintain them in regular classrooms. These findings add further support to Deshler's (1978) warning against applying the traditional characteristics of younger LD children to the adolescent LD population. An alternative explanation would be that the LD students in this study were not representative of the general LD population.

Two of the categories of interaction which served as dependent variables in the first analysis were student initiated interactions. They were Volunteers Answer and Requests Help. As with the other variables in this analysis, no significant differences in frequency of these behaviors between LD and NLD students were found. No difference in frequency of Volunteers Answer would indicate that LD students are as willing to offer a response in class as their NLD peers. No difference in Requests Help is less clear. One interpretation would suggest that LD students are not hesitant about asking for help and that they need no more help than their peers. An alternative explanation is that LD students need more help and that since they only requested help as often as NLD peers, their needs are not being attended to because of their reluctance to request assistance. An additional unexpected finding was that teachers called on LD students as frequently as NLD students. This finding contradicts

earlier research with younger children which demonstrated that low achievers received less opportunity to respond (Good, 1970).

Teachers offered assistance to LD and NLD students with the same frequency. The same two explantions offered above could be offered here. Either, LD students require no more teacher assistance than NLD students, or because more teacher assistance would be expected, teachers are not providing LD students with the assistance they need.

The second set of analyses related to the first research question essentially confirmed the first analysis. Some differences between the groups, however, were found in the proportion of occurrence of specific types of interaction within each group, respectively. In addition, a clear pattern of differences existed in the proportion of academic versus social interactions as well as differences between approval and disapproval teacher behaviors.

An overwhelming difference existed between the proportion of academic and social classroom interactions in favor of academic contacts. This finding is consistent with previous observation studies (e.g., Anderson & Scott, 1978; Evertson et al., 1978) that found less socially-oriented teacher-student interactions and more sustained concentration on academic activities at the secondary level. Of the total academic interactions between teachers and all students, a significantly greater amount were positive. This was true for both groups of students. This finding is encouraging and probably reflects teachers' belief in the value of positively reinforcing students in academic endeavors. This is unexpected for the LD group since previous work in this area would suggest that teachers interact less positively with underachievers (deGroat et

al., 1949; Good, 1970; Hoehn, 1954; Kranz et al., 1970). This may indicate a sensitivity on the part of teachers for the problem faced by the LD student and recognition of their need for positive encouragement. An additional unexpected finding was that a greater proportion of the academic interactions between teachers and students were directed toward LD students. LD students received more academic approval and disapproval than NLD students. The proportions of approval versus disapproval for the two groups, respectively, were not significantly different, however. The fact that teachers interacted academically more often with the LD students further questions the validity of Good's conclusion that underachievers receive less opportunity to respond. However, Good's work was with younger children, while this data relates to interactions of adolescents and their teachers.

While most academic interactions were positive, the opposite was true for social interactions. For both groups considered together, there was a significantly greater proportion of negative social contacts between teachers and students. When analyzed separately, however, this difference held for the NLD group but did not for the LD students. That is, while NLD students received more social disapproval from their teachers than social approval, LD students received about the same proportion of approval and disapproval. Since teachers rated LD and NLD students the same in terms of classroom behavior (i.e., hyperactivity, defiance and dependency), this would suggest that although LD students' behavior was comparable to NLD students' behavior, teachers were less likely to disapprove of LD students. One explanation for this finding could be that teachers

were more accepting of LD students' behavior because they felt that they were not totally responsible for their misbehavior.

The general conclusion of the analysis of the first research question is that where differences existed in the way teachers interacted with LD and NLD students, both academic and social interactional differences were slightly in favor of the LD students. Teachers interacted academically with LD students more often than with the target NLD students, while maintaining a balance between positive and negative interactions that was comparable for both groups of students.

In terms of social interactions with all students, teachers were more likely to be negative. However, LD students received similar amounts of positive and negative social interactions with their teachers, while NLD students received more negative than positive social contacts with their teachers.

The second research question must be examined in light of the answers to the first question. Even though the observational data indicated that if any differences existed in the treatment of LD and NLD students they were in favor of the LD students, LD students perceived their teachers as directing significantly less approval and somewhat more disapproval toward them than the NLD students did. These results suggest that LD students misperceived the interactions that took place between themselves and their teachers. Although the fact that LD students reported being happy in their regular classroom less often than NLD students is discouraging, this finding is not surprising in light of their perception of their teacher's behavior toward them. At least four explanations can be offered for the LD students' responses to the approval and disapproval items.

The first explanation concerns the LD adolescent's ability to interpret social stimuli. Lerner (1976) described the LD youngster with a deficit in social perception as "poor in judging the moods and attitudes of people" and "insensitive to the general atmosphere of a social situation" (p. 325). If this type of deficit is present in the LD adolescent population, it might be expected that the LD student does not perceive approval and disapproval situations accurately.

An alternative explanation might be that the frequency of teacher approval and disapproval is not the central factor. Intensity of teacher approval and disapproval may account for more of the student's perception of teacher behavior than how often it occurs.

A third alternative would be that LD students are accurate in their perceptions of teacher approval and disapproval behavior but that the observations were biased because teachers knew the LD students who were being observed while they did not know which NLD students were observational targets.

A fourth interpretation centers on the LD students' need for approval. Because a history of school failure is more likely for LD students, they may require a disproportionate amount of approval to feel accepted. Certainly, providing LD students with an abundance of approval and minimal disapproval is accepted practice in resource room programs (Hallahan & Kauffman, 1976; Tarnopol, 1969).

The question of the LD students' happiness in the regular classroom is discouraging and somewhat confusing. Assuming that the TADS data are valid, several interpretations seem appropriate.

First, the observational data could be accurate but the LD students misinterpreted teacher behavior. This would mean that the LD students reported being happy less often because they believe their perceptions of less approval and more disapproval from the teacher. Thus, the unhappiness is to be expected if their teachers are reinforcing agents in their lives. Second, the observational data could be biased, making the LD students' perceptions of teacher approval and disapproval accurate. Again, unhappiness would be expected if teachers are reinforcing agents in the LD students' lives. A third alternative is that teachers are not the reinforcing agents in the LD students' lives and that their ratings of the amount of time they feel happy in their regular class is dependent on their relations with their peers and not their teachers. This explanation appears to be plausible for three reasons. First, the importance of the peer group as the reinforcing group in the lives of adolescents is unquestionable. Second, the general trend is for students to become less staisfied with school as they progress through the grades (White, 1975), thus minimizing the effects of the teacher as the reinforcing agent. This is particularly true for students who are not achieving well. Finally, the TADS items which make up the happiness dimension are not specifically related to teacher behavior. They merely ask how often the student is happy, unhappy, or enjoys being in the classroom. Therefore, it is possible that the reason LD students are happy less often than NLD students is, at least in part, due to the interactions they have with their NLD peers. This presents an important area for future investigation, especially in light of the relationship between emotional well-being and learning (Lerner, 1976).

The third research question attempted to identify specific teacher and student attributes that would predict the amount of teacher approval and disapproval directed toward students. The analyses performed proved to be generally fruitless.

The canonical correlations between teacher approval and disapproval and student and teacher variables, respectively, did not produce significant results. The small numbers in each analysis most likely affected findings. Although these analyses did not identify significant relationships, studies of the same variables using larger samples hold the promise of identifying relationships which could serve as guides to the development of teacher and student interventions to improve teacher-student relationships.

The last attempt to relate teacher and student attributes to classroom interactions identified only one significant positive correlation that was meaningful. Teacher rating of hyperactivity and the frequency of academic approval correlated .44 ($p < .01$). This finding was somewhat confusing since it meant that teachers gave more academic approval to students they perceived as hyperactive. A possible explanation might be that teachers use academic approval as a control measure; however, this finding should be viewed tenuously.

No significant correlations could be identified among teacher attitude toward specific LD students and the amount of teacher approval and disapproval behavior. It is interesting to note, however, that the average attitude score was 81 (SD = 12.7). This is somewhat higher than Lazar's (DeBoar, et al., 1974) estimate of positive attitudes toward handicapped individuals (i.e., 70) using the ATHI instrument. It appears that, in general, the teachers in

this study held positive attitudes toward their LD students. The fact that the referent on the instrument (each teacher's specific LD student) was more specific than the general referent of "handicapped individual" could account for higher scores than expected (Gottlieb & Siperstein, 1976).

Any attempt to apply the findings of this study or to replicate it should do so in light of several important lminitations. The constraints within which the study was conducted presented some methodological problems. First, although the NLD students were randomly selected within specific classrooms, the LD students were not. Selection was limited to the LD students available for observation. Second, the number of observational units (i.e., teacher-LD-NLD) was small (N=29). This was particularly detrimental to the power of the canonical correlations to identify relationships among teacher and student attributes and classroom interactions. Third, the total amount of observation time per classroom was low. The original design called for two class periods of observation time, i.e., 110 minutes. This amount, itself, was considered low but was necessary due to budgetary constraints. The amount of observation time was reduced further by absenteeism, tardiness, and special bell schedules.

A fourth weakness involved observation bias. As is true in most observational studies, there is no guarantee that teachers or students are behaving as they do when the observers are not present. Possible bias was further complicated by the fact that teachers knew the observers were observing the LD students in class, although they

did not know the NLD student nor did they know the observational categories of concern. Finally, the observational system used in this study accounted for only frequency of interactions. No measure of intensity of approval or disapproval was used. Future studies should address the intensity question as well as the sequence of interactions and the context within which they occur.

Reference Notes

1. The author wishes to thank Harvey J. Sepler, Ph.D. for his assistance in the development and description of the observation system.

2. The author wishes to recognize and thank the Research Assistants who were assigned by the Institute for Research in Learning Disabilities to work on this project. They are: Harvey Sepler, Jay McCarty, Jody Huxman, Janice Braun, JorJa Landauer, Katherine Lindeman, Deborah Jones and Elaine Smith.

3. The author wishes to thank the Core Staff of the Institute for their support of and assistance in the completion of this project. Special thanks go to Don Deshler for his administrative backing; Mike Warner for his research design and analysis expertise; and Fran Clark for her editorial assistance and emotional support.

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Table 2

Comparisons of LD and NLD Students On Observational Variables

Type of Interaction	LD		NLD			
	Mean	SD	Mean	SD	t	p
Original Variables						
1. Approval-Social-Verbal	.0021	.0062	.0017	.0076	.19	.850
2. Aporoval-Social-Nonverbal	.0003	.0019	.0000	.0000	1.00	.326
3. Approval-Academic-Verbal	.0010	.0031	.0007	.0026	.46	.647
4. Approval-Academic-Nonverbal	.0000	.0000	.0003	.0019	-1.00	.326
5. Disapproval-Social-Verbal	.0052	.0106	.0090	.0208	- .88	.386
6. Disapproval-Social-Nonverbal	0000	.0000	.0000	.0000	.00	1.000
7. Disapproval-Academic-Verbal	.0017	.0047	.0003	.0019	1.47	.149
8. Disapproval-Academic-Nonverbal	.0000	.0000	.0007	.0037	-1.00	.362
9. Called-On-Positive	.0110	.0375	.0107	.0187	.04	.965
10. Called-On-Negative	.0007	.0026	.0014	.0044	-.73	.471
11. Called-On-Neutral	.0055	.0087	.0069	.0100	-.56	.578
12. Volunteers Answer-Positive	.0086	.0263	.0066	.0154	.37	.716
13. Volunteers Answer-Negative	.0003	.0019	.0007	.0037	-.45	.656
14. Volunteers Answer-Neutral	.0076	.0183	.0024	.0051	1.47	.151
15. Requests Help-Positive	.0193	.0387	.0121	.0319	.78	.440

Table 2, (Con't.)

	LD		NLD			
	Mean	SD	Mean	SD	t	p
Original Variables						
16. Requests Help-Negative	.0003	.0019	.0003	.0019	.00	1.000
17. Requests Help-Neutral	.0045	.0154	.0010	.0041	1.14	.261
18. Teacher Initiated Assistance	.0128	.0295	.0069	.0128	.98	.333
Combined Variables						
19. Social Approval	.0024	.0064	.0017	.0076	.38	.709
20. Social Disapproval	.0052	.0106	.0090	.0208	-.88	.386
21. Called On	.0112	.0384	.0190	.0226	-.21	.836
22. Volunteers Answer	.0166	.0415	.0097	.0176	-.89	.382
23. Requests Help	.0241	.0420	.0134	.0338	1.07	.290
24. Academic Approval General	.0010	.0031	.0010	.0031	.00	1.000
25. Academic Disapproval General	.0017	.0047	.0010	.0041	.60	.553
26. Academic Approval Specific	.0197	.0487	.0172	.0227	.24	.810
27. Academic Disapproval Specific	.0010	.0031	.0021	.0056	-1.01	.323
28. Academic Approval Total	.0207	.0486	.0183	.0235	.24	.811
29. Academic Disapproval Total	.0028	.0059	.0031	.0066	-1.00	.328
30. Academic Ignore Specific	.0131	.0222	.0093	.0119	.81	.422

Table 15

Means and Standard Deviations for TADS
Approval, Disapproval and Happiness Items

Group	Approval	Disapproval	Happiness
LD	M = 1.27	M = 0.88	M = 0.42
	SD = 0.59	SD = 0.45	SD = 0.56
NLD	M = 1.58	M = 0.66	M = 0.83
	SD = 0.56	SD = 0.37	SD = 0.64

Table 16

Summary of Analysis of Variance for TADS Responses

Source	SS	df	MS	F
Classification (C)	1.195	1	1.195	4.91*
Error	13.642	56	0.244	
Type of Perception (TP)	20.861	2	10.431	33.08**
TP X C	3.223	2	1.612	5.11***
Error	35.318	112	0.315	

* p .05

** p .001

*** p .01

Table 17

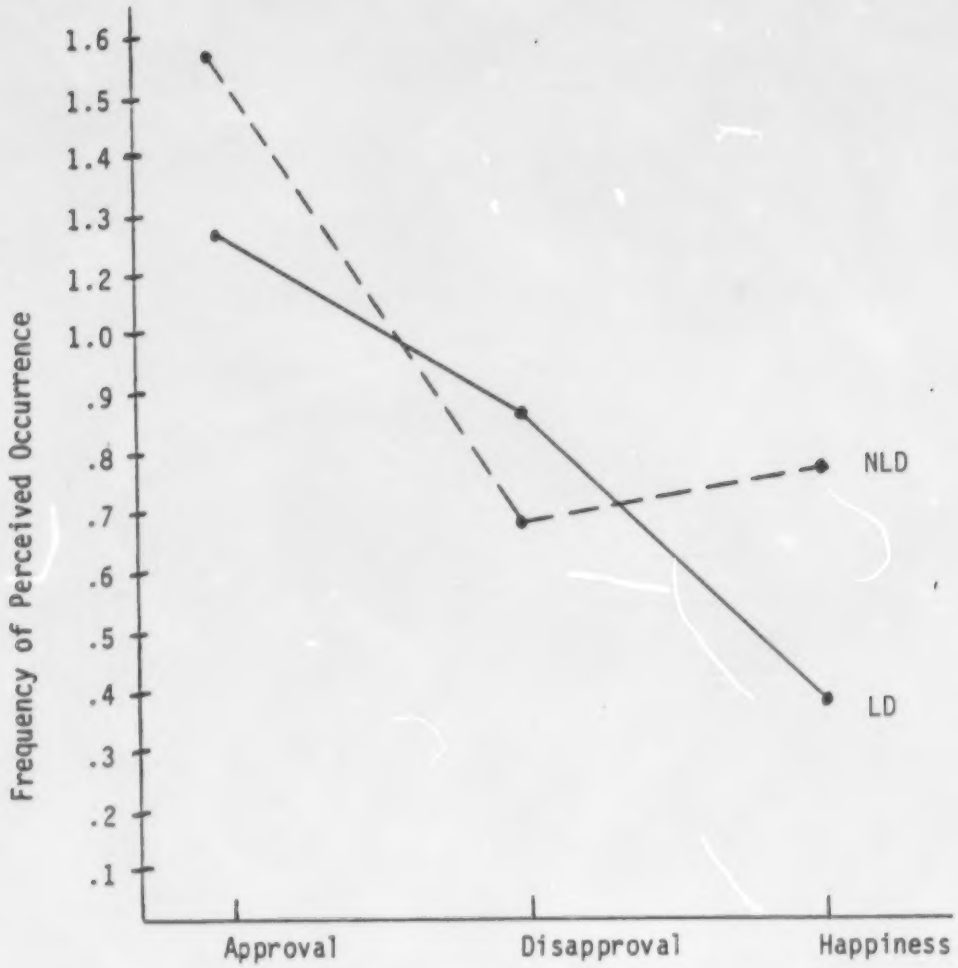
Summary of Analysis of Simple Effects for Approval, Disapproval and Happiness

Source	SS	df	MS	F
Classification (C)				
Approval	1.395	1	1.395	4.8*
Disapproval	.67	1	.67	2.3
Happiness	2.35	1	2.35	8.1**
Error	16.296	56	.291	

* Significant at .05 level

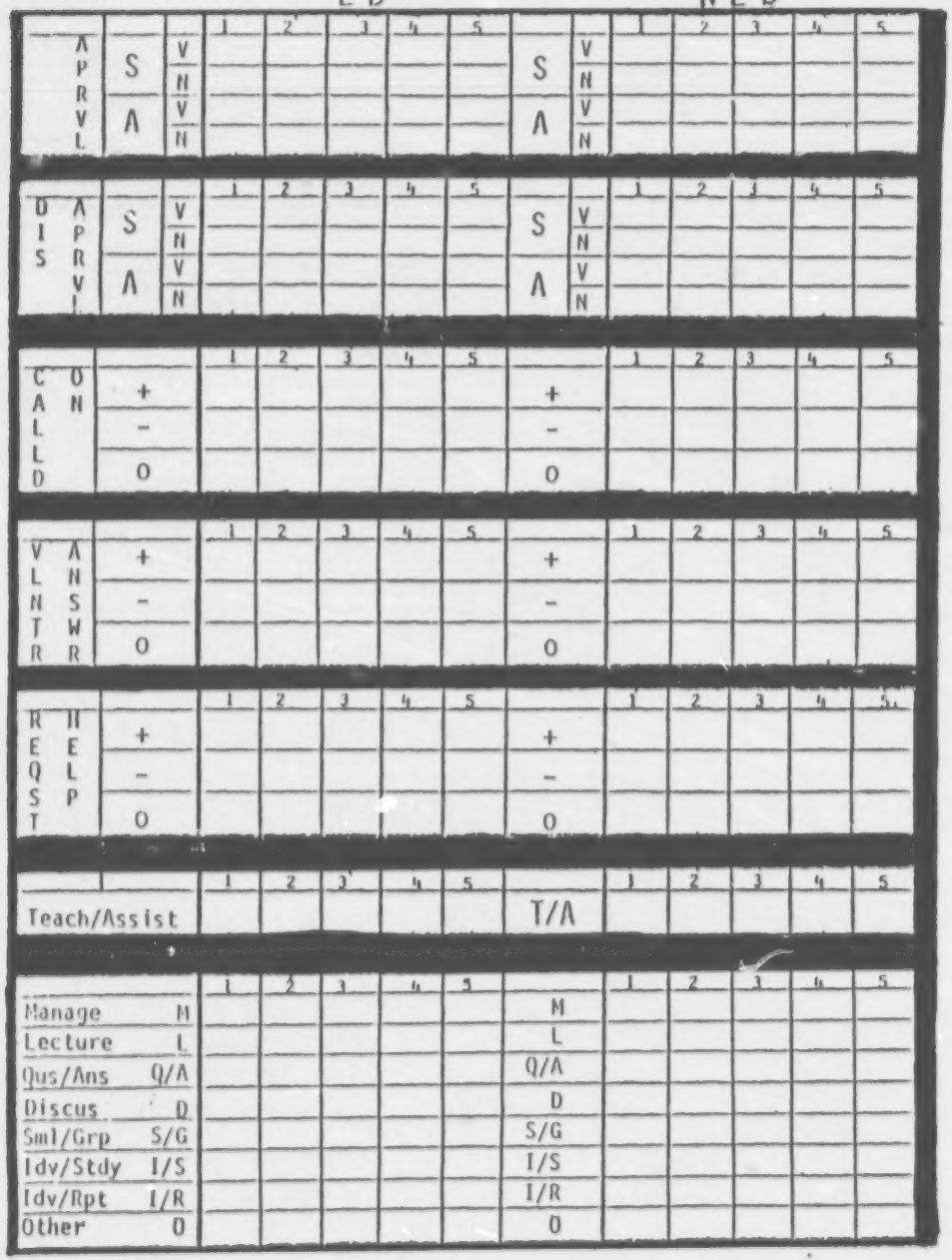
** Significant at .01 level

Figure 1



Interactions of LD and NLD Responses
on Three Repeated Measures

APPENDIX A



Date _____

Sheet # _____

Observer _____

Teacher Code: _____

LD Code: _____

NLD Code: _____

	M	F
Total in class:		
Present today:		

Time Start: _____

Time End: _____

Total Minutes Observed: _____

Reliability: _____

Other Observer: _____

APPROVAL — Teacher acknowledges or praises target LD or target NLD student. Indicate whether approval is verbal or non-verbal and given for academic or social behaviors.

Academic interactions are any behaviors that center on academic performance or are related to academic tasks taking place in the classroom. Verbal or non-verbal communications about past academic activities or academic activities completed outside of class (e.g., homework) are also classified as academic interactions.

Social interactions are behaviors that do not have academics as a referent. Interaction related to deportment, appearance and school or non-school social activities are considered social interactions.

EXAMPLES

Social-Verbal:	Teacher vocalizes how nice target student is dressed or that s/he is prompt.
Social Non-Verbal:	Teacher smiles or pats student on the back for listening or helping other students.
Academic Verbal:	Teacher vocalizes how excellent target student's homework has been lately. Or, makes a positive comment about the worth of the target student's academic performance.
Academic Non-Verbal:	Teacher smiles, makes approving hand gestures, or writes comment on board following target student's suggestion about next week's homework assignment.

DISAPPROVAL

Teacher expresses non-acceptance, disappointment, or criticism of target LD or target NLD student. Indicate whether disapproval is verbal or non-verbal and given for academic or social behaviors. Academic and social interactions are defined the same as they were for APPROVAL.

EXAMPLES

Social Verbal: Teacher vocalizes how sloppily student is dressed or how inappropriately student behaves.

Social Non-Verbal: Teacher slaps, pushes, or sneers at target student for classroom deportment, sloppiness, lateness, etc.

Academic Verbal: Teacher vocalizes how disappointing student's recent term paper was, how little he is contributing to a science group project or how poorly he has done on an academic task.

Academic Non-Verbal: Teacher sneers or frowns at target student while looking at his assignment, or shakes his head while watching the target student complete an academic task.

CALLED ON

Target LD or target NLD student is called on by the teacher to answer a question or perform a task. However, mark this category only if student is called on without first volunteering. Usually, student is called by name, but does not first raise hand or call out answer.

Mark whether teacher reacted positively (+), negatively (-), or neutrally (no response) (0) to target student's answer.

EXAMPLES

+ (positive)

1. "That's a very complete answer".
2. "Not exactly, but you're on the right track."

- (negative)

1. "It's about time!"
2. "You should have studied more."
3. "You don't know because you were talking while I was lecturing."

0 (neutral)

1. Does not acknowledge student's response.
2. Calls on another student without giving feedback to the first student called on.

VOLUNTEERS ANSWER

Target LD or target NLD student volunteers to answer an open question (i.e., posed to entire class) and is acknowledged. This can occur if student volunteers by raising hand or by calling out an answer.

Mark whether teacher reacts positively (+), negatively (-), or neutrally (no reaction) (0) to target student's answer.

EXAMPLE

Teacher to class:	"What kind of coal is harder -- anthracite or bituminous?" Target LD raises hand, teacher acknowledges, student answers: "anthracite". OR Target LD calls out "anthracite".
+ (positive)	1. "Good answer." 2. "It's good to see you participating in class discussion."
- (negative)	1. "Lucky guess." OR "You finally got one right."
0 (neutral)	1. Ignores student's answer. 2. Calls on another student without acknowledging target student.

REQUESTS HELP

Teacher responds to target LD or target NLD student's request for assistance, information, or direction. This follows a request made by student hand-raising or vocal summon.

Mark whether teacher reacted positively (+), negatively (-), or neutrally (no reaction) (0) to student's request.

EXAMPLES

+ (positive)	1.	"Yes, it's good to see you thinking in new ways."
	2.	"I can see you're trying."
- (negative)	1.	"Why can't you work these problems out on your own?"
	2.	"Don't interrupt the study period."
0 (neutral)	1.	Teacher does not respond.
	2.	Ignores target student's request.

TEACHER ASSIST

Teacher approaches target LD or target NLD student to provide assistance, information, or direction. The assistance is given without a request from the student.

EXAMPLE

The class is reading silently in individual study when the teacher approaches the target NLD student to make sure that he understands the material being read.

The teacher sees the target LD student struggling with an independent activity. S/he circulates around the room and quietly asks the target LD student if s/he would like some help.

TYPE OF INSTRUCTION

For each interval, mark whether the teacher is engaging in general non-instructional activities (management), lecture, question-answer with entire class, or discussion with entire class (less formal). Otherwise, mark whether the students in class are broken into small groups, are studying individually, or are giving individual reports to the class or small groups. If none of these are performed, mark other. After observation is completed, write a comment to explain what other meant.

Since these activities are likely to extend for some time, mark only the interval where the form of activity begins or changes from one type to another.

EXAMPLES

Interval 1	teacher describes new bell schedule (management)
Interval 9	teacher lectures on science (lecture)
Interval 23	teacher switches to rapid questions-answer about lecture (question/answer)
Interval 43	teacher asks students to read silently from text (individual study)

TRAINING TAPES*

1. (M22) The Classroom As It is (SS 804)
   Social Studies: Secondary History

2. (M23) The Classroom As It Is (SS 808)
   Social Studies: Secondary Discussion

3. (M27) The Classroom As It Is (SS 600)
   Sociology: 12th grade

4. (M33) The Classroom As It Is (SS 622)
   Geography: Secondary (Manufacturing and Agriculture; the factors that effect each other).

5. (M36) The Classroom As It Is
   Social Studies: Secondary

6. (M37) The Classroom As It Is (SS 811)
   Geography: 11th grade

7. (M46) The Classroom As It I: (SS 812)
   Secondary Science, Geography

* The Classroom As It Is: The Video Tape Project, Carleton College, Northfield, Minnesota, Hellen D. Berwald, Project Director, Fall, 1971.

APPENDIX B

Correlation Matrix for Teacher-Student Interactions and Teacher Attributes*

	1	2	3	4	5	6	7	8	9	10	11	12
1. Social Approval	1.00											
2. Social Disapproval	.24	1.00										
3. Academic Approval	-.08	-.03	1.00									
4. Academic Disapproval	-.06	.14	.25	1.00								
5. Teacher age	.07	-.07	.26	.28	1.00							
6. Teacher Sex	.17	-.01	-.10	.15	-.16	1.00						
7. Level of Training	-.05	-.12	.20	.01	.44	-.36	1.00					
8. Years Experience	.07	.03	.30	.19	.68	-.33	.45	1.00				
9. Special Education Courses	-.13	.05	.16	.07	.02	.25	.20	.01	1.00			
10. Type of Contact with Handicapped	-.07	-.21	-.02	.22	-.02	-.48	.15	.15	-.50	1.00		
11. Length of Contact with Handicapped	-.11	-.28	.23	.04	.25	-.22	.22	.17	-.11	.53	1.00	
12. Attitude Toward Handicapped Individuals (ATHI)	.02	.16	-.22	-.21	-.19	-.03	.19	.08	.01	.14	.02	1.00

* A correlation of .33 is significant at alpha = .01.

Correlation Matrix for Teacher-Student Interactions and Student Attributes*

	1	2	3	4	5	6	7	8	9	10
1. Social Approval	1.00									
2. Social Disapproval	.24	1.00								
3. Academic Approval	-.09	-.03	1.00							
4. Academic Disapproval	-.05	.15	.17	1.00						
5. Classification (LD-Non-LD)	-.03	.12	-.07	-.03	1.00					
6. Reading Achievement	.13	.17	-.15	-.08	.55	1.00				
7. Math Achievement	-.07	.17	-.18	-.10	.39	.57	1.00			
8. Defiant-Resistive	-.07	.27	.17	.08	-.05	-.11	-.13	1.00		
9. Hyperactivity-Expansive	-.06	.21	.44	.06	.14	-.06	.02	.49	1.00	
10. Needs Approval-Dependency	.10	-.10	.25	-.01	-.05	-.25	-.30	.05	.31	1.00

* A correlation of .33 is significant at alpha = .01